

REMARKS

Claims 1-20 are pending in the present application, of which claims 1, 12, and 20 are independent claims.

The Applicant appreciates the Examiner's indication that prior rejections have been overcome.

102 Rejections

Claims 1-19 were rejected under 35 USC 102(e) as being anticipated by US Pat. 6,263,335 to Paik et al. ("Paik"). Applicant traverses these rejections.

With regard to claim 1, the rejection is primarily premised on the CRC triples of Paik being the same as the claimed the S-A-Os. However, Applicant suggests that this is not actually the case.

In Paik a CRC triple is a Concept-Relation-Concept. "CRC triples are the building blocks of the CHESS System. They consist of a subject concept, a descriptive concept which describes the subject concept, and a relation which describes the relation between the subject and descriptive concepts." (Paik, col. 13, lines 53-57) A "concept" is a named person, place, thing, or organization. (Paik, col. 6, lines 14-15) And a "relation" *defines* the nature of the interaction, dependency, influence, or simple co-occurrence that binds two concepts – a semantic relation. (Paik, col. 6, lines 16-18, lines 23-25) A concept is extracted from text, so can be a subject or object appearing in the processed text. But a relation is not actually "extracted" from the text – as that term is used in this field. Rather, a relation is determined through analysis of the text – it does not actually appear in the text. According to Paik, a relation categorizes the concepts "at the more abstract conceptual level." (Paik, col. 6, lines 20-21) "Relations define how concepts are connected to each other. They define what role a concept plays in a proposition or sentence." (Paik, col. 3, lines 40-42) A "dyadic" relation links a pair of concepts, while a "monadic" relation is associated with a single concept.

In the present case, in an S-A-O each of the S, the A, and the O consists of words from the text – i.e., each is extracted from the text. However, in Paik, the relation is not truly extracted from the text. A comparison of a CRC triple from Paik and an S-A-O from the present application illustrates the fundamental difference between the two.

<u>Present Invention</u>	<u>Paik</u> (Paik, Col. 14, line 57 – Col. 16, line 28)
<u>From:</u> <i>How do I reduce cholesterol?</i>	<i>Mr. Tessitor is an insurance agent at Northwestern Mutual Life Insurance Co. of Milwaukee.</i>
<u>To:</u> A: reduce, O: cholesterol (Input has “A-O” form)	<CRC> 30/Douglas_F._Tessitor →(class) → insurance agent 30/Douglas_F._Tessitor→(affiliation)→ 20/Northwestern_Mutual_Life_Insurance_CO 20/Northwestern_Mutual_Life_Insurance_CO→ (location)→ 1/Milwaukee/6/Wisconsin/7/United_States </CRC>

Note that in Paik’s CRC example, forming the CRC included replacing “Mr. Tessitor” with “Douglas_F_Tessitor;” the relations (e.g., *class*, *affiliation*, and *location*) do not appear in the input sentence, as does the Action (A) in the present invention; the concepts have category ID numbers (“20” for company, “30” for person, and “1” for city); and “Milwaukee” was expanded to : 1/Milwaukee/6/Wisconsin/7/ United_States.” For various reasons, an S-A-O (which does not have a “relation”) and CRC are quite different. Thus, Applicant suggests that the CRCs of Paik do not truly teach the S-A-Os of the present invention.

Paik says that the above CRC representation is the “processed form of the sentence that will be stored in the KR Database 115.” (Paik, Col. 16, lines 26-28) However, since Paik’s CRC triples do not teach the S-A-Os of the present application, a KR database of CRC triples does not teach “a knowledge base comprising a set of answers have the form S-A-O ...” as in claim 1. Note that for the input sentence of the above example, a stored S-A-O answer is:

KR database of CRC triples does not teach “a knowledge base comprising a set of answers have the form S-A-O ...” as in claim 1. Note that for the input sentence of the above example, a stored S-A-O answer is:

Clofibrate-reduce-cholesterol

(S) (A) (O)

Note the A and O in the answers both appear in the originally input sentence (which had the A-O form), and there is no *relation* in the sense taught by Paik. Paik does not actually show the form of its answers. Thus, Paik’s KR database of CRC triples (as KR units) does not teach the claimed knowledge base of S-A-O answers.

It follows, given the fundamental differences between Paik’s CRC triples and the S-A-Os of the present invention, that the “problem statement generator” of claim 1 is also not taught by Paik, i.e., one that can “automatically generate a problem statement in the form A-O, S-A, S-X-O or S, where S, A and O are query elements in the natural language query, where X indicates absence of a query element.” In fact, Paik processes its input query in the same way it does text from a document, by generating CRC triples. The concept of a “problem statement generator” as used in claim 1 does not appear in Paik. And even if Paik’s CRC Extraction process 105’ were considered to be a problem statement generator, Paik does not generate problem statements in the claimed form, maintaining the S, A, and Os from the query. Paik actually replaces words or phrases from the original text to form its CRC triples (e.g., “Mr. Tessitor” was replaced by “Douglas_F_Tessitor” in the above example).

The Office Action says Paik’s KR Database 115 and Browser 125 teach the “server coupled to the knowledge base” in claim 1. But critically, Paik does not teach that these “search the knowledge base using the problem statement to find at least one S-A-O answer, wherein the A and O, or S and A, or S and O or S query elements in the problem statement are also in the at least one S-A-O answer.” As noted, Paik’s CRC triples are not S-A-Os, so Paik does not teach a knowledge base of S-A-O answers, nor searching such a knowledge base of S-A-O answers.

And Paik does not teach that its answers include S, A, and Os from the original query. For instance, continuing the above example, which also appears in the present

application, Paik does not search for answers that must include elements from the input query:

<u>Query:</u>	How do <i>I reduce cholesterol?</i>		
<u>Answers:</u>	Dietary measure- <i>reduce-cholesterol</i>		
	(S1)	(A)	(O)
	Clofibrate- <i>reduce-cholesterol</i>		
	(S2)	(A)	(O)

Rather than the claimed approach, once Paik stores its query CRC triples, it uses a Similarity Measurer 55 to measure the similarity between KR units from the query and KR units in the KR DB 115. (see Paik, FIG. 2, col. 9, line 61 – col. 10- 16) Similarity Matching is done using a Similarity Calculator 240 and Ranker 240 in FIG. 9 of Paik. According to Paik, “the degree of similarity is calculated by counting how many of the same concepts and relations are found in both the Query KR units and each KR unit in the database (i.e., the number of concepts and relations which are the same in both).” (Paik, FIG. 9, col. 22, line 49–53) Partial matches in which the concept matches, but the relation does not, are discarded.” (Paik, col. 67 – col. 23, line 1) Therefore, it is essential to have a *relation* match to find a CRC match in Paik. Yet, the S-A-Os of claim 1 do not include “relations” as in Paik and the server of claim 1 does not search for such relations. In fact, the fundamental differences between Paik’s CRC triples and the claimed S-A-O approach become increasingly apparent with appreciation of the completely different approaches for finding answers.

Therefore, analysis of Paik’s CRC triples demonstrates a very fundamental difference with the present invention. Paik is very heavily reliant on determining “relations” between concepts and requires matching of a relation to find answers. The claimed invention requires none of this, and is not taught by Paik. Instead, the claimed invention determines S, A, and Os from the original query and finds answers that include the same elements.

For several reasons, Applicant believes that Paik does not anticipate the system of claim 1. Reconsideration and withdrawal of the rejection is requested.

Claims 2-11 depend from claim 1, and are not anticipated by Paik for at least the same reasons. Reconsideration and withdrawal of these rejections is requested.

Claim 12 is an independent claim that was rejected for the same reasons as given for claim 1, and Applicant believes that Paik does not anticipate the system of claim 12 for similar reasons. Reconsideration and withdrawal of the rejection is requested.

Claims 13-19 depend from claim 12, and are not anticipated by Paik for at least the same reasons. Reconsideration and withdrawal of these rejections is requested.

103 Rejections

Claim 20 was rejected under 35 USC 103(a) as being unpatentable over Paik in view of US Pat 6,173,279 to Levin et al. ("Levin"). Applicant traverses this rejection.

Paik was cited as teaching most of claim 20, consistent with the rejection to claim 1 above. Levin was added to show the URL query and HTML page aspects of claim 20.

For reasons stated above, Applicant suggests that Paik does not teach fundamental aspects of claim 20. Furthermore, Applicant suggests that Levin should not be combined with Paik as suggested, because Paik clearly identifies itself as a client-server system, with no suggestion or motivation to use URL query processing, e.g., generating a knowledge base query from a URL query. For example, since neither Paik nor Levin teach generating problem statements and answer S-A-Os as in claim 20, they do not teach "converting the problem statement into a URL query" and "converting the one or more S-A-O solutions into at least one HTML page" as in claim 20.

For several reasons, Applicant believes that Paik and Levin, whether alone or in combination, do not make obvious the method of claim 20. Reconsideration and withdrawal of the rejection is requested.


Closing Remarks

It is submitted that all claims are in condition for allowance, and such allowance is respectfully requested. If prosecution of the application can be expedited by a telephone conference, the Examiner is invited to call the undersigned at the number given below.

In connection with this matter, please charge any otherwise unpaid fees which may be due, or credit any overpayment, to Deposit Account No. 501798.

Respectfully submitted,

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